

OIT's Steel Partnership Portfolio

Production Efficiency

- BF Hot Oxygen Injection
- Dephosphorization with DRI/HBI
- High Productivity RHR Ironmaking
- Optical Sensors for the BOF and EAF
- Post Combustion Optimization
- Thermal Behavior of Slags
- Real-time Melt Measurement
- Galvanneal Steel Temp Measurement
- Steel Cleanliness Analysis Tool
- Inclusion Removal in the Tundish
- Molten Metal Flow Control
- Clean Cast Steel
- Strip Casting Study
- Furnace Thermal Imaging
- Steel Reheating
- Transfer Bar Edge Heating
- Intermetallics for the Steel Industry
- Enhanced Operation of Highly Varying Loads
- Clog-Resistant Submerged Entry Nozzles
- Improved Refractories
- Controlled Tube/Pipe Processing
- Laser Ultrasonics for Seamless Pipe
- Value Chain Analysis
- Intermetallic Alloy Development
- Heat Treating Furnace Fan
- Spray Rolling
- Computational Fluid Dynamics
- Improved Refractories for Glass
- Industrial Assessment Center Program
- Composite Electrodes
- Extraction of Oxygen from Air
- Energy-Efficient Electric Rotary Furnace
- Miniature, Oxygen Sensor
- Super-Alloy with Improved Weldability and Oxidation Resistance
- Rotary Burner
- Steel Foundry Refractory Lining Optimization — Electric Arc Furnaces
- Advanced Abrasion Resistant Materials
- Advanced Materials and New Manufacturing Techniques
- Composite Wear Resistant Components
- Comminution Circuit Optimization
- Selective Processing of Fine Mineral Particles
- Software for Simulating Efficient Grinding Mills
- Advanced Wireless Sensors
- Laser for Harsh Combustion Environments

Plain Text: Direct Projects
Italicized Text: Related Projects

Environment

- Low-NOx Burners for Steel Industry Boilers
- Low-emission, Oxygen-enriched Furnace
- Dilute Oxygen Combustion
- NOx Reduction with Oscillating Combustion
- Optical Sensor for EAF Post-Combustion
- Non-Cr Passivation for Electrolytic Tin Plate
- *Forced Internal Recirculation Burner*
- *Super Boiler*
- *Control of Natural Gas Fired Furnaces*



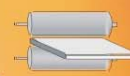
Ironmaking



Steelmaking



Casting



Forming/
Finishing

Recycling

- Effect of Residuals in Carbon Steel
- Recycling Waste Oxides in Steelmaking Furnaces
- Steelmaking Using Biomass and Waste Oxides
- EAF Refractory Service Life/Recycling
- Particulate Briquetting
- EAF Dust to Saleable Products
- Acid Pickle Liquor Regeneration

Steel Processing Efficiency

- Cold Work Embrittlement of IF Steels
- Intelligent Induction Hardening
- Making Steel Strapping/Strip
- Cost-Effective, Efficient Steel Framing
- Deformation Behavior of Lightweight Steel Structures
- Surface Quality of Automotive Sheet Steels
- Improved HSLA Sheet Steels
- Behavior of Multiphase Sheet Steels
- Resistance Spot Welding for Transformation-Hardened Steels
- Laser-assisted Arc Welding
- Steel Foam Materials and Structures
- Lightweight Steel Containers
- SMA/DOE Education Initiative
- *Fault Warning Device*
- *Full-Strength Pipe Connection*
- *Heat Treatment Procedure for Steel Casting*
- *Optimization of Die Steels*
- *Performance of Stainless Steel Castings*
- *Thin-Section Steel Castings*
- *Yield Improvement in Steel Castings*
- *Die Casting Die Lubricants*

Funding Summary

Project Type	OIT	Cost-share	Total
Direct	\$48M	\$33M	\$81M
Direct and Related	\$76M	\$55M	\$131M